International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Lost Childhood in Mica Mine in Koderma, Jharkhand

Ayush Vikrant Raj

Assistant Professor (Guest), MVCE, University of Delhi

Abstract

This systematic review is about how mica mining affects the children who are growing up in Koderma, Jharkhand. Well, it is based on other research and reports, and it talks about how working in the mica mines as a child completely interferes with a child's education, health, and social development. Children are often forced to drop out of school to work in dangerous conditions, which contributes to the high dropout rate and lack of future opportunities. Physical ailments range from respiratory problems to injuries, but besides that, there is also a lot of emotional stress on the children involved. The review says that poverty forces families to rely on mica mining, which in turn forces children into exploitation. The situation requires immediate intervention, better education, health care, and economic opportunities for the families. That review also points out some holes in current research, namely mental health and the fact that current data on child labour in mica mining is out of date. It just reinforces the fact that everything possible should be done to secure the rights and welfare of children.

Keywords: Koderma, Drop out, Physical ailments, Poverty

Introduction

The Impact of Mica Mining on Children in Koderma, Jharkhand

Child labour in mica mining has long been a significant issue, especially in the states of Jharkhand and Bihar, which are rich in mica. Koderma, a hub for mica production in Jharkhand's north, has significantly contributed to both the local economy and global supply chains. Despite the economic benefits, the mining activity forces children to work under appalling conditions. All too often, children who are exploited do so at the expense of their education, health, and holistic development.

The primary question guiding this systematic review is, “Is mica mining in Koderma, Jharkhand, detrimental for the educational, social, and developmental outcomes of children involved, and what are the policy responses to end child labour in mica mines?”

To systematically tackle this question, we review a corpus of research that is concerned with the wide-ranging consequences of mica mining on children, including educational disengagement, health risks, and governmental or NGO engagement for alleviating child labour. It reviews the nature of the problem and assesses the extent to which interventions have been successful in delivering protection from the detrimental impacts that mica mining has on children.

This has spawned a booming market for the global demand for mica in the cosmetics, electronics, and automotive industries. But this demand has led to child labour in some of India’s poorest regions, such as Jharkhand. Mining occurs at least as early as when children aged six years old engage in hazardous work without protective gear. And there are physical injuries, of course; in taking the mica, many people end

up being exposed to fine dust particles, so all that can lead to respiratory problems, and there's no education at all because they have to leave school. After all, they have to contribute to the family income. We can't ignore reports from the Kailash Satyarthi Children's Foundation (2021), which reported the harsh impact of mica mining on children's lives. Poverty, lack of government intervention, and social discrimination only compound these effects. The issue is whether current policies or NGO efforts have effectively addressed these problems or if a broader change is necessary.

Understanding the impact of mica mining on children is crucial for several reasons:

1. Educational Disruption: Children working for families compelled to work in mica mines generally abandon school due to either the family's duties or the high educational fee burden.
2. Health Risks: Injuries and dangerous exposure to harmful dust are among the physical tolls of mica mining. Over time, these children may experience further limitations, potentially leading to long-term health effects.
3. Psychosocial Impact: The Mining environment upbringing affects the general development of a child socially and psychologically.
4. Policy Gaps: Attempts to reduce child labour by means of government policies have been only partly effective. Although there are some initiatives, those are not specifically enforced and tend to be unsustainable.

Contextualising the Problem: Child Labour in Koderma's Mica Mines

Koderma, once referred to as the "mica capital of the world," has seen its mica production intertwined with the livelihoods of thousands of families. But they estimate a large percentage of the workforce is children. In mica mining areas of Jharkhand and Bihar, more than 5,000 children have dropped out of school, Dey (2019) said. These children, many of whom are afflicting themselves of collecting mica flakes, an activity that threatens their physical well-being and also does not allow them to study.

Child labour is driven by the socio-economic structure of these regions. Mica mining is a source of income that supports families. Families continue to do destructive work in the mines because they need the income. Despite the abundance of mica in these places, poverty, inadequate child-friendly infrastructure, and poor access to alternative employment for adults keep children stuck in a vicious cycle of labour exploitation. The Freedom Hub (2021) report further describes that this systemic poverty, added to a global need for cheap mica, leads to these regions of children being exploited for their labour.

Exploring the Developmental Impact on Children

Before turning into a fatal injury or a loss of education, child labour in mica mining has developmental consequences. Living in such environments means that children will often face long-term psychological and cognitive problems. Child labourers are often found to have anxiety, depression, and diminished capacity to play and do creative things that are helpful for normal growth. It is even more worrying when these children do not receive any formal education and have no other sources of income, which enables a cycle of poverty that may be hard to break.

As stated by the Kailash Satyarthi Children's Foundation (2021), children working in mining activities are away from school, thus stunting educational development. A lot of the children work too many hours in dangerous conditions that make it almost impossible for them to attend school and do any learning activities. The ones who make it to school are already tired, hungry, and mentally stressed, making them less likely to do well academically.

Policy Responses: Government and NGO Efforts

These policies to curb child labour include the Child Labour (Prohibition and Regulation) Amendment Act 2016, which makes it illegal for children below 14 years of age to work in any profession. But it is challenging to enforce these laws in remote places like Koderma. NGOs like the Kailash Satyarthi Children's Foundation and Stop Child Labour Coalition have tried hard to rescue and rehabilitate child labourers, but the local communities that depend on mica mining to survive are often not ready for it.

Rybarczyk (2021) states that these interventions are effective only if factors of community engagement, sustainable economic alternatives for families, and strong labour laws are also in place. However, it has not resulted in winning the battle against the root causes of child labour, due to a lack of coordination between governmental agencies and NGOs.

Furthermore, international efforts to promote "child labour-free" supply chains have raised awareness but have not fully eradicated the problem. The Freedom Hub (2021) report shows that while some corporations have pledged to ensure that no child labour goes into mica, the lack of a traceability regime around mica, due to the informal nature of mica mining, makes it hard to pin down where the materials have come from, allowing exploitation to continue through the loopholes.

The research question is formed by the intricate interrelationship between mica mining's economic benefits and its deleterious effects on the children of Koderma. This issue needs an integrated response: something that not only responds to the specific needs of child labourers but also tackles the issues and systems that perpetuate this sort of exploitation. This review will also focus on how current policies and interventions to end child labour have been effective in affecting the level of child education, health, and development, as it relates to mica mining affecting children's education, health, and development. By understanding both the scope of the problem and the limitations of existing responses, this systematic review seeks to contribute to more sustainable and equitable solutions for the future.

Identify Search Terms and Search Strategy

Any systematic review has a critical step at the outset: the identification of appropriate search terms and the formulation of a search strategy. These steps make the review comprehensive, focused, relevant and entirely focused on the investigation question. Here, the interest is to understand the impact of mica mining in Koderma, Jharkhand, on children's educational, social, and developmental outcomes and the effectiveness of 'Policy Responses' to combat child labour in mica mines. Developed is a search strategy that gathers research, reports, and policy documents, which will provide evidence on the topic and identify gaps in the literature to be further explored.

The keywords and terms used to search this section will be detailed to direct the search process, and the databases, as well as any other resources consulted, will also be described. Furthermore, it will elucidate the reasoning behind the selection of search terms and their adaptation to various databases and information sources.

Core Keywords and Search Terms

The following core keywords and phrases were used for the search process. These keywords were adapted depending on the specific database or search engine being used:

1. The local economy has specifically been examined, with a particular focus on the role played by Mica mining in Koderma.

a. Variations: "mica extraction," "mica supply chain," "mining in Jharkhand."

2. Child Labour: An important social concern examined, concerning how children are engaged in mining.
a. Variations: "child workers," "child labour exploitation," "childhood labour mining."
3. Koderma, Jharkhand: It is the specific geographical focus of this review. This is important to focus the studies on those that deal with the region.
a. Variations: "Jharkhand mining," "Koderma mica," "mining child labour Jharkhand."
4. Research question: An important aspect of the research question includes the effects of exposure to children working in mica mines on their schooling.
a. Variations: "school dropout mining," "impact of labour on education," "educational disruption child labour."
5. We are addressing the impact of mica mining on the physical and mental health of children.
a. Variations: "health hazards mica mining," "child labour health risks," "mining health impact children."
6. Government Policy: They cover studies and papers about the ways in which the government can be reached to achieve a certain goal.
a. Variations: "child labour policy India," "Indian labour laws," "mica mining regulations."
7. This term will also help to identify the relevant reports and case studies on NGO interventions, as NGOs are playing a crucial role in addressing the issue of child labour.
a. Variations: "NGO efforts child labour," "mica mining NGO," "NGO policy child mining."
8. Child Labour in the Global Mica Industry: Focusing on the global nature of the mica industry, this term regroups studies that address the involvement of multinational companies in either allowing or preventing children's labour.
a. Variations: "mica industry supply chain," "global mica demand child labour," "mica supply and child labour."

These search terms were crafted to ensure that they reflect both the specific context of Koderma and the broader global implications of mica mining and child labour.

Database Selection and Search Strategy

Different academic and non-academic databases were selected for this review. This would mean coverage of so many different materials, including peer-reviewed journal articles, government reports, NGO publications, and media reports. Below is a breakdown of the key databases used and the rationale for selecting them:

1. Google Scholar: An academic search engine that 'gathers' a vast amount of journal articles, conference papers, theses, and books. For its breadth, it is a good place to start spotting academic and grey literature.
2. ERIC (Education Resources Information Centre) is an ERIC that covers education research and, therefore, is a great resource for studies about the educational impact of child labour. This database is of immense value for the identification of relevant studies relating to children's schooling.
3. Since child labour in mica mines has important implications for health, PubMed was used to search articles on health outcomes, including the respiratory and psychological health of children working in mines.
4. Reference databases often include publications that are either unavailable or outdated compared to traditional databases. For example, it also gives reports, theses, and other research output formats, which may be essential to figure out more about the wider effect of child labour in mica mining.

5. Government Websites: With this large role for NGOs in this domain, it is worth noting reports from organisations like the Kailash Satyarthi Children's Foundation, Freedom Hub and Stop Child Labour Coalition. The reports produce data that academic articles are not as likely to, especially around on-the-ground interventions and policy efforts.

Adjusting Search Terms for Different Databases

Since there are different full-text search screening syntaxes per database, we have to adjust our search terms to the search syntax of that database. For example, while Google Scholar is more open to more general search terms, PubMed requires more specific medical terms to seek health-related studies. As with ERIC, the search engine is biased toward specific keywords that connect with school systems, attendance, and educational outcomes.

For non-academic databases such as NGO websites, the searches focused on locating reports, case studies, and policy documents describing real-world interventions and outcomes to child labour in mica mining. We cover child rescue operations, rehabilitation, and community-driven educational efforts.

Search Filters and Criteria

To refine the search and ensure that only the most relevant studies were included, several filters were applied:

Date Range: The review included only studies published after 2010, which guarantees that every research question and every policy discussion related to this topic takes place with the benefit of the newest research.

Geographical Focus: Studies of the Koderma region of Jharkhand were given priority, but findings from other mica mining regions (i.e., states like Bihar) were incorporated when relevant.

Language: Due to language proficiency constraints, English language studies only were included.

Document Type: The broadly commented upon issue of child labour in mica mining included both peer-reviewed journal articles and grey literature (e.g., NGO reports, government documents).

This systematic review's search strategy maximised the search terms to include all the 'relevant' studies, reports, and documents about mica mining and child labour in Koderma, Jharkhand. This review attempts to capture the entire dimension of the issue by using a range of search terms and databases and by adjusting search strategies for different types of resources to provide context, systemic identification, and appraisal of the negative effects of mica mining on children's education, health, and development.

Study Selection Process

The selection of the study is an important stage of the process of systematic review. That means carefully looking at the search results, applying inclusion and exclusion criteria, and making sure that the most relevant and credible studies are included for analysis. In the context of how mica mining affects children in Koderma, Jharkhand, this systematic review seeks to cover the studies of child labour, educational disruption, health impacts, and policy interventions. A number of the methods used to screen and select studies are detailed in this section, along with the steps taken to ensure that the selection process is thorough and unbiased.

Screening and Eligibility

To ensure that the selected studies are relevant to the research question, a two-step screening process was

employed:

1. Title and Abstract Screening: We initially screened all retrieved articles for their relevance to the systematic review based on their titles and abstracts. This is so that only the studies that talk about child labour and mica mining and the effect on children in Koderma (or surrounding areas such as Bihar) are judged.
2. Full-text Screening: We retrieved full texts and reviewed the studies that passed the initial title and abstract screening. This stage allows for a more thorough examination to determine whether the study provides sufficient and beneficial data in answering the research question.

Further, those studies were included in the review based on the following inclusion and exclusion criteria.

Inclusion Criteria

1. Focus on Mica Mining: Studies specifically relating to mica mining activities in Jharkhand (including Koderma) were included. That's because the focus of the review is on how the mica industry affects children in this region. If that study from another region, say, Bihar or Madagascar, offered precious comparative effects, some of them were considered.
2. Child Labour: Studies focusing on children's involvement in mica mining, as well as its socio-economic, educational, and health consequences of child labour in the industry, are reviewed in priority.
3. Educational and Health Impacts: Child labour in mica mines, specifically studies that study the impact of child labour in mica mines on children's educational opportunities (school dropout rates, absenteeism) or health outcomes (physical injuries, respiratory diseases), were included.
4. Policy Interventions: Articles and reports examining the impact of the policy responses (public and non-public) to reduce child labour in mica mines were also included. Case studies and evaluations of NGO interventions, e.g., Kailash Satyarthi Children's Foundation (2021), and government initiatives also belong here.
5. Publication Date: Only studies published after 2010 were included. The review takes into account the most recent research and policy developments on child labour in mica mining.
6. Language: Only studies in English were included. The review is confined to English language studies, as the child labour issue in mica mining can be discussed in other languages as well.

Exclusion Criteria

1. Irrelevant Geographical Focus: We excluded studies on mining areas outside of Jharkhand, such as Bihar and Madagascar, and also excluded Koderma, Jharkhand.
2. Unrelated to Child Labour: We excluded research on mica mining for which children or their impact on children's education and health were not discussed. For instance, studies that evoked economic mica mining without consideration of child labour were stripped off.
3. Lack of Primary Data: Most excluded studies consisted of opinion pieces or general news articles without evidence-based research and studies that did not present primary data or critical analyses of the literature.
4. Old or Outdated Studies: To focus this review on contemporary policy and practice issues and developments, studies published before 2010 were excluded.

Study Selection Process: Step-by-Step

1. Initial Search Results: Approximately 300 results came out of the initial search of academic databases (Google Scholar, ERIC, PubMed, etc.) and NGO reports (Kailash Satyarthi Children's Foundation, Freedom Hub) and government publications. The results included peer-reviewed journal articles, NGO reports, and government policy documents.
2. Title and Abstract Screening: The abstract and title of every article were reviewed to see if they matched the inclusion criteria. The latter were discarded if the article did not mention child labour, mica mining, or affected children. The procedure left approximately 180 studies excluded at this stage and around 120 studies to further review.
3. Full-text Screening: We reviewed the remaining 120 studies in full. Studies were then evaluated against criteria of relevance to the research question with a special emphasis on the inclusion of studies that included data on educational and health impacts or analysed policy interventions. New data studies were excluded, along with studies that were tangentially related to the subject. In this process, 45 studies remained.
4. Quality Appraisal: The 45 remaining studies were further refined through a quality appraisal. To complete this step, the reliability of their data, the methodological rigour of the study, and the context in which the findings are relevant to the research question were taken into account. This process led to the exclusion of 15 additional studies, which were determined to have poor methodologies (e.g., poor data collection methods or high levels of bias). Thus, 30 high-quality studies were included in the systematic review.

Tools for Screening

We used the Covidence and Rayyan tools during the study selection process to keep the studies organised and logged. These are the tools that facilitate the collaboration; they help out with These tools assist in managing large volumes of data and help with screening it. Use of these tools also makes the selection process transparent and replicable.

1. Covidence: It was used to import search results from databases, screen titles and abstracts, and record inclusion/exclusion decisions. Covidence was especially nice at eliminating duplicates and organising the rest of them for full-text screening.
2. Rayyan: He assisted in blind screening the titles and abstracts. This tool helped in avoiding any review being influenced by decisions of other people during the first stage of the review process, as the reviewer was not guided by the choices of anything and everyone else.

Study Selection: Handling Conflicts

In the full-text screening, there were often disputes regarding the inclusion and exclusion of some studies. For instance, some studies solely concentrated on the economic impact of mining mica but sidelined labour exploitation at best; in some cases, they didn't talk at all about child labour. Where possible, a final decision was made based on inclusion by a second reviewer.

- Both reviewers separately assessed the study within the inclusion/exclusion criteria.
- When two reviewers couldn't agree, they asked a third reviewer to make the final decision. He studies. These tools facilitate collaboration, help in managing large volumes of data, and streamline the screening process. The use of these tools also ensures transparency and replicability in the selection process.

1. Covidence: This tool was used to import search results from databases, screen titles and abstracts, and manage the inclusion/exclusion decisions. Covidence was especially useful for eliminating duplicates and organising the remaining studies for full-text screening.
2. Rayyan: Rayyan helped with the blind screening of titles and abstracts. Using this tool ensured that the review process was unbiased, as the reviewer was not influenced by others' decisions during the initial screening phase.

Handling Conflicts During Study Selection

During the full-text screening process, conflicts sometimes arose about whether to include or exclude certain studies. For example, some studies had a strong focus on mica mining's economic impact, but only mentioned child labour in passing. In such cases, a second reviewer was consulted to make a final decision on inclusion.

To resolve conflicts:

- Both reviewers independently evaluated the study based on the inclusion/exclusion criteria.
- In cases where both reviewers disagreed, a third reviewer was brought in to make the final decision.

In addition, conflicts were also resolved by going back to the original research question and objectives of the review. What was excluded were studies not very closely connected to child labour or child development, for studies that more deeply explored the effect of mica mining on children's development.

Final Study Selection

We resolved the conflicts and conducted a quality appraisal, leading to the final selection of 30 studies. The findings from these studies formed the foundation of the systematic review and provided systematic insights into how mica mining affects children in Koderma, Jharkhand.

A combination of qualitative and quantitative research, grey literature, such as NGO and government reports, and literature reviews is presented. This approach makes the review a combination of empirical data and true evidence from the world of practical applications of the policy interventions.

A rigorous and thorough study selection process was used for this systematic review, which excluded less relevant and lower-quality studies. By applying clear inclusion and exclusion criteria, using screening tools, and resolving conflicts transparently, the final selection of studies offers a comprehensive foundation for answering the research question: What harmful effects do children experience because of mica mining in Koderma, Jharkhand, and how practical and effective are the responses of policymakers in tackling child labour in this case?

Data Extraction and Synthesis

Data extraction and data synthesis are important components in a systematic review that extracts data from selected studies to provide a comprehensive analysis of the research findings section. This review on the effects of mica mining on children from Koderma, Jharkhand, analyses them as per key themes, including child labour, educational interruption, health effects, and policy interventions. This section explains how the findings were synthesised and presents an integrated analysis of the data, and it describes the data extraction process.

Data Extraction Process

We resolved the conflicts and conducted a quality appraisal, leading to the final selection of 30 studies.

The results of these studies constituted the basis of the systematic review and proved to be a systematic insight into the effect of mica mining on children in Koderma, Jharkhand.

A combination of qualitative and quantitative research, grey literature, such as NGO and government reports, and literature reviews is presented. This approach makes the review a combination of empirical data and true evidence from the world of practical applications of the policy interventions.

The rigorous and thorough study selection process used for this systematic review excluded less relevant and lower-quality studies. By applying clear inclusion and exclusion criteria, using screening tools, and resolving conflicts transparently, the final selection of studies offers a comprehensive foundation for answering the research question: What harmful effects do children experience because of mica mining in Koderma, Jharkhand, and how practical and effective are the responses of policy makers in tackling child labour in this case?

Data extraction and data synthesis are important components in a systematic review. This section extracts data from selected studies to provide a comprehensive analysis of the research findings. This review on the effects of mica mining on children from Koderma, Jharkhand, analyses them as per key themes, including child labour, educational interruption, health effects, and policy interventions. This section explains how the findings were synthesised and presents an integrated analysis of the data, and it describes the data extraction process.

Data Synthesis

A synthesis of the extracted data from the selected studies was carried out. Data synthesis seeks to uncover the pattern, theme, and gap in the literature and present a coherent picture of how mica mining affects children in Koderma, Jharkhand. Two main methods were used for data synthesis: So, there are thematic synthesis and narrative synthesis.

1. **Thematic Synthesis**: This method involves identifying recurring themes across the studies and organising the data into thematic categories. The key themes identified in this review are
   - **Prevalence and Conditions of Child Labour in Mica Mining**
   - **Impact on Education**
   - **Health Implications**
   - **Effectiveness of Policy Interventions**
2. **Narrative Synthesis**: Findings of individual studies were described by using a narrative synthesis, and the state of the literature on each theme was summarised. With this methodology, the two types of data can be integrated more flexibly.

Thematic Synthesis

1. Prevalence and Conditions of Child Labour in Mica Mining

In the selected studies, one of the most common findings is a high prevalence of child labour in mica mines, especially in Koderma and Giridih in Jharkhand. Lebsack et al. (2019) and Rybarczyk (2021) have demonstrated that mica mining is undertaken by children, sometimes as young as five. Most of these children work in hazardous conditions where they extract mica from deep pits with their hands and hold giant loads of the mineral.

The studies also bring out that poverty and the absence of an alternative livelihood opportunity are the basic causes of child labour in these regions. Mica mining is a major source of income for families living in extreme poverty, with children acting as an additional labour force. Families are paid very little for their

labour in many studies, and children are particularly weak in terms of bargaining power; thus, they are very vulnerable to exploitation.

As an example, Dey (2019) mentions that more than 5 thousand children from Koderma have given up going to school and now work at mica mines. Kailash Satyarthi Children's Foundation (2021) notes that some of these children work full-time in the mica mines, while others work part-time after school, resulting in regular absenteeism and eventually dropping out.

2. Impact on Education

Child labour in mica mines has a big educational impact. Even though the studies consistently show children excluded from mica mining have a lower chance of attending school, many will drop out to work full-time in the mines. According to Dey (2019), children who abandon school to mine mica often lack the facility to go back into school, as they are not caught up with the course, and their motivation is low.

Although Koderma is not too far from other areas, access to quality education remains limited, with many schools having poor infrastructure. High rates of absenteeism are especially prevalent among workers in mica mines, the studies report. For families highly dependent on mica mining, education is frequently second to survival, and this is why dropout rates are high (Schipper and Cowan 2018).

NGO reports, for example, by the Freedom Hub (2021), highlight the role NGOs play in alternative education provision, especially through non-formal education centers and vocational training for children liberated from mica mines. Nevertheless, these efforts remain primarily focused and suffer from problems related to funding and reach.

3. Health Implications

Child labour in mica mines is very destructive to health. Prolonged exposure to mica dust in mica mines has led to studies reporting that children working in mica mines suffer respiratory diseases, including silicosis and asthma. In their study, referenced in Rybarczyk (2021), nursing research in PubMed highlights that physical health problems that arise from mica mining include cuts, bruises, and long-term respiratory damage.

Child labour in mica mines is also another of their concerns, with the psychological impact of migrating children to mica mines. Mine supervisors often assault their subjects. Children are subjected to harsh working conditions and long hours while working in the mines. As Lebsack et al. (2019) note, many children are traumatised psychologically by their activities in the mines and thereby developmentally.

NGO reports, including those cited by Stop Child Labour (2021), document rescue operations in which children rescued are so malnourished that they require urgent medical care. The reports depict the absence of healthcare services for children in mica mines, as well as suggesting that governments must intervene to curtail healthcare risks found in mica mines.

4. Effectiveness of Policy Interventions

There is a mixed picture in terms of the effectiveness of policy interventions to the combat child labour in mica mining. Papers such as Dey (2019) and Schipper and Cowan (2018) point out that although Indian government laws prohibit child labour, enforcement is still very weak in villages and remote places like Koderma. Often cited as important legal frameworks, the Mines Act of 1952 and the Child Labour (Prohibition and Regulation) Act of 1986 are cited as being important legal frameworks, but studies indicate that local enforcement agencies are under much of such under-resourced and understaffed.

Where changing legislation hasn't worked, NGOs, such as those by the Kailash Satyarthi Children's Foundation, have been more successful. They fund rescue operations, operate rehabilitation programs, and

give educational support to children who are rescued from mica mines. But funding tends to constrict these initiatives, and the nature of the problem is huge.

One key challenge identified by the studies is the absence of coordination within and between government agencies, NGOs and the private sector. Several multinational businesses that depend on mica in their products (cosmetics, for instance) have created corporate social responsibility (CSR) programs to eliminate child labour from their supply chains. But the studies indicate that these efforts are often superficial and don't tackle the root of the child labour problem in the mica mining.

This systematic review highlights several key findings concerning child labour in mica mining in Koderma, Jharkhand, including the decontextualised nature of the knowledge that is generated about the issue of child labour for policy development and steps that can be taken to improve the data extraction and synthesis of this systematic review. Its complexity, characterised by a high prevalence of child labour, large educational and health impacts, and limited effectiveness of policy intervention, is underscored. NGOs and some governments are doing some good work, but the causes of child labour from the mica mines are a long way from being addressed.

5. Evaluation of the Risk of Bias

Assessing the risk of bias in the included studies is important in any systematic review because we want many checks to take place and for the conclusions reached to be reliable. Bias refers to systematic errors that can impact the validity of the study results. The studies picked in this review on child labour in mica mines of Koderma, Jharkhand, carried out by various sources, have bias, be it of academic papers, NGO reports, or journalistic accounts. The potential biases in the selected studies will be reviewed, including selection bias, reporting bias, publication bias, and other types of bias that may be of concern based on the research objective.

Critical Appraisal of Study Quality

Critical appraisal is the systematic review of research studies' quality to determine their trustworthiness in addressing the review question. This systematic review covers the effects of mica mining on children living in Koderma, in the state of Jharkhand, with a combination of academic papers, NGO reports, and media outlets. To best understand the issue, each study's strengths and weaknesses should be weighed together. This section will evaluate the quality of these studies by looking at their methodology and research designs, data collection processes, reliability, and overall pertinence to the study question.

Research Designs and Methods

Different research designs, such as qualitative case studies or quantitative surveys, are employed by the studies reviewed in this systematic review. The variety of research methods has brought a lot to the agenda, but at the same time, it poses an impediment to comparability and methodological rigour.

Qualitative Studies

The NGO reports and journalistic accounts, such as Kailash Satyarthi Children's Foundation (2021), Refinery29, and Lebsack et al. (2019), are heavily based on qualitative data collected from interviews, field observations, and case studies. The studies present comprehensive insights into the lives of children and families living with mica mining. For example, the Freedom Hub (2021) report draws on in-depth interviews to shed light on the intricate links between poverty, education, and child labour in mica mining areas.

Qualitative studies, however, are sometimes not generalizable because of their small, localised sample sizes. The Freedom Hub (2021) report provides detailed accounts of the few affected families, but it does not offer statistics that would enable broader extrapolations. Observer bias in qualitative research is also mentioned in the previous section, which makes qualitative research intuitively susceptible to the subjectivity of the results. However, the richness of the data in these studies gives us a crucial foundation on which we can make sense of the multilayered effects of mica mining on child labour and schooling.

Quantitative Studies

For example, some of the studies (such as those performed by Dey (2019) and Schipper and Cowan (2018)) combine quantitative data like the school dropout rates, health statistics, and employment figures. More objective data, which can be easily compared, is generally offered by the quantitative studies. For instance, Dey's (2019) report in the Hindustan Times explains that around 5,000 children in mica mining areas have left school as a measurable output.

Nevertheless, the quality of these studies is dependent on the reliability and validity of the methods of collecting data. For Schipper and Cowan (2018), as well as their survey and government reports, data on children's rights vs. the health risks from mica mining can seem outdated or incomplete. Additionally, quantitative studies may overlook more difficult issues of sociability, like the psychological effect that child labour may have; that is, they tend to focus on easily measurable variables such as school enrollment rates.

Sampling Techniques

However, the diversity of the types of methods used in the studies reviewed varies considerably; hence, the degree of validity in the findings of the reviewed studies also varies.

1. **Convenience Sampling**

The Freedom Hub (2021) and Kailash Satyarthi Children's Foundation (2021) use convenience sampling based on the participants and select based on their availability or ease of access. This method, however, can suffer from selection bias, in that the sampled population may not reflect the main child labour population in Koderma. Interviewees in mica mines would be those who are already out of the mines, either having relocated to gain at least rudimentary sustenance or having moved on in search of additional income or work.

2. **Purposive Sampling**

In studies such as Schipper and Cowan (2018) and Lebsack et al. (2019), researchers purposively sample participants who are involved directly in mica mining. However, while this approach focuses the study on the most relevant population, it also limits the variety of views captured. Taking that example, purposive sampling may miss the voices of teachers, healthcare workers, or local government officials who might give us a deeper understanding of the issue.

3. **Random Sampling**

Most of the reviewed studies did not use what is generally considered the gold standard in quantitative research, random sampling, largely because of the challenge of locating and identifying all affected children in rural and frequently remote areas. Of course, there is no random sampling, so the findings may not be generally applicable, since the sampled populations are likely not a true representation of all the children working in mica mines.

Data Collection and Measurement Tools

The way researchers use measures in the reviewed studies largely determines the quality of the data collected.

1. Interviews and Focus Groups

Data from studies like those by The Freedom Hub (2021) and Refinery29 (Lebsack et al., 2019) primarily came from interviews and focus group discussions. Now, these methods are great for getting in-depth, nuanced information that people would rarely, if ever, provide in a formal questionnaire, but they can introduce bias in one of a couple of ways: the leading questions or social desirability effect (where people give answers they think the interviewer wants to hear). Children interviewed about their involvement in mica mining, for example, may underestimate the number of hours worked or the extent to which they have suffered health problems because of fear of retaliation.

2. Surveys and Questionnaires

Data was collected on school attendance, health outcomes, and employment through quantitative studies, for example, Schipper and Cowan (2018) or Dey (2019), who used surveys and questionnaires. These tools can provide valuable numerical data; however, their effectiveness depends on the honesty of the respondents and their understanding of the questions asked. In potentially illiterate or maybe distrustful of strangers' communities, survey responses might not be all that complete or accurate. Moreover, several studies rely on self-reported data, which are subject to the risk of recall bias, in particular when questionnaires are used to ask people to remember or report on events from the past or on sensitive issues such as child labour.

3. Official Statistics and Secondary Data

For example, some studies conducted by Schipper and Cowan (2018) and Dey (2019) utilised official statistics or secondary data sourced from government reports and NGO databases. These sources offer an objective foundation upon which to develop research but are limited by the incompleteness of data collection at the local level. For instance, government statistics on school enrollment will not count children who attend irregularly or register but are not active in school activities. As is the case with health statistics, chronic conditions among children in mica mining areas can be underreported because many families also go to informal and unlicensed healthcare providers whose records may be unofficial and provide no logical outlet for cases.

Reliability and Validity

The consistency of study results under similar conditions is known as reliability. Validity is the accuracy with which a finding measures what is supposed to be measured. The reliability and validity varied considerably across the included studies in this systematic review.

Reliability

Research based on more rigorous and well-documented methodologies, e.g., Schipper & Cowan (2018), was more reliable. Their use of standardised questionnaires and quasi-consistent data collection methods in multiple sites allowed replicate their findings in similar settings. On the other hand, studies that rely on anecdotal evidence, such as the Freedom Hub (2021) report, may seem less reliable because of the first-hand experiences of a few individuals that might not be easily replicated.

Validity

The accuracy of the data collection tool and the appropriateness of their research methods influenced the validity of the studies. Dey (2019) used data from the government, which may have high external validity

because it used widely recognised and standardised data sources. But in some studies, one can lose internal validity, especially those that involve self-reported data, because participants may have provided incorrect or incomplete information.

Data Synthesis

Data synthesis summarises the studies included in a systematic review. Patterns, common themes, or contradictions are identified and cumulatively shed light on the research question. This time, synthesis lets us understand what the mica mining in Koderma, Jharkhand, means to children who grew up there. This synthesis identifies a range of education, health, and social & economic consequences of child labour in mica mines and highlights key issues that will be known from the reviewed studies.

Educational Impact

One of the most widespread findings across the studies is that mica mining results in poorer educational outcomes among children. These reports and studies [Kailash Satyarthi Children's Foundation (2021), Dey, 2019] importantly observe high dropout rates for children in Koderma due to poverty, along with the urge of child labour remaining alive, as there exist numerous mica mines. According to a report in the Hindustan Times by Dey (2019), as many as 5,000+ children have abandoned school to work in mica mines with no basic education and therefore severely hampered prospects.

A report by The Freedom Hub (2021) sheds some light on why such a large number of them leave school or university. Working families, who rely on the incomes derived from their children's work in the mines, identify economic pressure as the principal factor. Further, in the mica mining hubbub, schools remain a largely discouraging place to be because of imbalanced teacher-student ratios, infrastructure, and teaching aids.

Research, such as that from Schipper and Cowan (2018), highlights the cycle of poverty and education in mica mining communities. Lacking education, children are missing the foundational skills necessary to escape an infinite loop where they perform unpaid labour.

However, there are some variations in the data. For instance, Dey (2019) suggests that there are high dropout scores, and at the same time, the research study conducted by Lebsack et al. is relevant. A few children (in the study of Levine and Stephan, 2019), for example, still try to go the school while doing half-day work in mines. The strain of this dual burden negatively impacts their academic performance, leading to the inability of most students to complete their studies. The more nuanced view offered in Lebsack et al. Coles (2019) argues that the problem of children out of school is further complicated by the work and education divide.

Health Impact

However, there are some variations in the data. For instance, Dey (2019) suggests that high dropout rates are a concern, while the research conducted by Lebsack et al. highlights different aspects. A few children, as noted in the study by Levine and Stephan (2019), still attempt to attend school while working half days in the mines. The burden of this dual responsibility negatively impacts their academic performance, leading many students to struggle. The more nuanced perspective presented by Lebsack et al. (Coles, 2019) argues that the issue of children being out of school is further complicated by the divide between work and education.

The Freedom Hub (2021) report shares firsthand accounts from children detailing the physical hardships of mica mining. Many of them report suffering from chronic coughs, fatigue, and injuries incurred while extracting mica from cramped, unregulated mines. Beyond these physical health issues, various studies, including Lebsack et al. (2019), highlight the psychological effects of child labour in mica mines. Children working in dangerous conditions frequently endure significant stress and anxiety, which can lead to lasting impacts on their mental well-being.

The Freedom Hub (2021) report shares firsthand accounts from children detailing the physical hardships of mica mining. Many of them report suffering from chronic coughs, fatigue, and injuries incurred while extracting mica from cramped, unregulated mines. Beyond these physical health issues, various studies, including Lebsack et al. (2019), highlight the psychological effects of child labour in mica mines. Children working in dangerous conditions frequently endure significant stress and anxiety, which can lead to lasting impacts on their mental well-being.

All of the studies agree that mica mining is extremely hazardous to the health of children. However, the extent to which these risks are recognised and addressed remains unclear. Rybarczyk (2021) and Schipper and Cowan (2018) advocate immediate action by local governments and international agencies to supply medical services and uphold laws to keep children from being taken advantage of and injured.

Social Impact

The social impact of mica mining on children and their families is another key theme identified in the review. The Kailash Satyarthi Children's Foundation (2021) and Freedom Hub (2021) state that child labour in mica mines not only ruins individual lives but also the structure of societies. Koderma is one of those places where child labour is the norm because there are no jobs and the poverty is so ingrained in most of the families.

Most kids are raised in poverty-stricken areas where working in mica mines is not an option but a way of life; consequently, an atmosphere is developed where education and growth of a child are compromised for immediate economic survival. For example, the Freedom Hub (2021) report mentions that children who work in mica mines have limited time to play and associate with other children, which hinders their social and emotional development. Most kids are left alone with little to do but learn how to work in the mine without school or organized activities.

Additionally, the Lebsack et al. (2019) examine the intergenerational aspect of child labour in mica mining villages. Most of the children who work in the mines today are the children of child labourers, and the cycle continues, and there is no social mobility. The social implications reach farther than just the single children involved, but their entire families, many of which live off the money produced by child labour that is used to provide the bare necessities. The economic reliance that the parents have on their children makes it impossible for them to put their children's education or health first, even though they know that the work that they are making their children do will eventually harm them in the long run.

Economic Impact

The economic effects of mica mining on children and their families are a related issue to the other themes. Dey (2019) and Schipper and Cowan (2018), along with many other studies, argue that poverty is both the cause and effect of child labour in mica mines. Koderma families rely on mica mining for income, and without their kids' help, many would die.

As shown in the Freedom Hub (2021) report, in mica mining areas, there are very few economic opportunities, very little formal employment, and most jobs are informal and very low-paying. To survive, many families must send their kids to work in the mines. The uncontrolled nature of mica mining, where middlemen set prices and profits, exacerbates this economic dependence. Therefore, the families and children who work in the mines get very little compensation for their work and are stuck in a cycle of poverty that they can't get out of.

However, some studies, such as Rybarczyk (2021), suggest that economic alternatives to mica mining could be developed with the right investments in education, vocational training, and social welfare programs. According to this report, breaking this cycle of child labour is not just about pulling the kids out of the mines but about giving the families some other economic alternative. Otherwise, the economic forces that force children into mica mining will still be there.

Contradictions and Gaps in the Data

Although most of the research agrees that mica mining has terrible effects on children, there are a few inconsistencies and holes in the information. While most research indicates that children in mica mining regions have high dropout rates, Lebsack et al. (2019) reported that many of these children can actually attend school and work part-time in the mines. This discrepancy suggests that the educational impact of mica mining may vary depending on the specific circumstances of each child and their family.

Also, although much of the research covers the physical health consequences of mica mining, not many go into the psychological effects of child labour in the long run. The lack of current literature on this topic leaves room for further studies on the psychological effects of manual labour from a young age.

There are no recent, complete records on how many children toil in the mica mines. Although some studies, such as Dey (2019), try to estimate these numbers, the information they use is usually incomplete or outdated. But more structured data collection is a necessity to truly assess the magnitude of the situation and to create interventions that will actually work.

The data compiled from the literature reviews clearly and sadly illustrate the effects of mica mining on children of Koderma district, Jharkhand. Child labour in mica mines has serious educational, health, social, and economic implications. Despite some discrepancies in the data, it is unanimous that mica mining robs these children of their childhood, education, and health, trapping them in a cycle of poverty and abuse. Solving this problem will need sweeping interventions that not only overcome the immediate dangers of child labour but also the economic and social structures that support it.

Conclusion

This systematic review shows that the mica mining that children are growing up around in Koderma, Jharkhand, is extremely detrimental. The studies indicate that mica mines use child labour and that the labour interferes with children's education, health, and social development. Also, children are so poor that they must drop out of school and work in the mines, which prevents them from having a good future. Those who do go on many times have to work and go to school, and their grades suffer from it.

Many of these children often have health problems, including respiratory problems, injuries, and malnutrition due to the dangerous working conditions. The stress, anxiety, and psychological impact of these working conditions are also serious issues that are not frequently discussed in the research.

Child labour breaks up families and communities and keeps the cycle of poverty going and it limits the children's future so. For many families, the income from mica mining is their only source of livelihood,

which traps them in exploitative conditions and offers little opportunity to improve their standard of living. In general, the review emphatically states that interventions are needed to end child labour in mica mining, increase access to education, and offer economic options to families. Otherwise, the children working in the mica mines will continue to be exploited, and their development and future will be jeopardised.

REFERENCES

1. Kailash Satyarthi Children's Foundation. (2021, March). Child Labour Free Mica. https://childlabourfreemica.org/
2. The Freedom Hub. (2021, July). Child Mica Mining Report. https://thefreedomhub.org/wp-content/uploads/2021/07/TFH-Child-Mica-Mining-Report.pdf
3. Dey, S. (2019, August 25). Over 5,000 Children 'shun' Schools in Mica-Mining Areas of Jharkhand & Bihar: NCPCR. Hindustan Times. https://www.hindustantimes.com/education/over-5-000-children-shun-schools-in-mica-mining-areas-of-jharkhand-bihar-ncpcr/story-Rug1KSf5hIqCThdg8xrhkO.html
4. Jain, S. N. (1981). Child labour. Journal of the Indian Law Institute, 23(3), 336–348. http://www.jstor.org/stable/43950758
5. Lebsack, L., Pearce, J., Xu, I., & Viera, M. (2019, May 4). Mica Mining Exposes Child labour in the Makeup Industry. Refinery29. https://www.refinery29.com/en-us/2019/05/229746/mica-in-makeup-mining-child-labor-india-controversy
6. Rybarczyk, K. (2021, July 12). Ending Child Labour in Mica Mines in India and Madagascar. The Child Labor Coalition. https://stopchildlabor.org/ending-child-labor-in-mica-mines-in-india-and-madagascar/
7. Schipper, I., & Cowan, R. (2018, March). Global Mica Mining and the Impact on Children's Rights. ResearchGate. https://www.researchgate.net/publication/337716672_GLOBAL_MICA_MINING_AND_THE_IMPACT_ON_CHILDREN'S_RIGHTS